

To evaluate supply reliability, Metropolitan developed a computer model named IRPSIM. This model uses 70 years of historical hydrology (from 1922 to 1991) to develop estimates of water surplus and shortage over the 20-year planning horizon. The output from these model runs enables staff to analyze the extent to which a particular supply option can add to the region's supply reliability and determine the need for additional supplies. It also helps to determine the appropriate targets for core and flexible supplies.

Core water supplies provide a certain amount of water in every year, regardless of whether surplus supplies already exist. Examples of core supplies include recycled water projects, safe yield groundwater production, and CRA base supplies. They provide the advantage of greater certainty with respect to the supply yield and cost. The disadvantage of core supplies is that if they are developed solely to meet infrequent dry year supply needs, they can be redundant in surplus years, thus resulting in higher costs. Flexible water supplies provide supply only when needed (such as a dry year) and do not result in increased amounts of surplus water during years of plentiful supply. Examples of flexible supplies include voluntary water transfers and storage. Flexible supplies tend to be more cost-effective than core supplies, especially in light of the high degree of variability of Metropolitan's existing supplies, but their supply yield may be less certain. Developing a resource strategy that balances both cost and risk requires a combination of core and flexible supplies.

Table 1 summarizes results from IRPSIM model studies performed to test the supply reliability of the adopted resource mix. The IRPSIM results show the region's ability to respond in future years under a repeat of the 1990-92 hydrology, that is, in the case of multiple dry years.

This shows that shows that the region can provide reliable water supplies under a series of multiple dry years. Table 2 shows a similar analysis using the historic hydrology of 1977, the single driest hydrologic year to date, and Table 3 reports the expected situation on average over all of the historic hydrologies.

The IRPSIM analyses of the IRP Update report show that Metropolitan can maintain reliable supplies under the conditions that have existed in past dry periods throughout the period 2005 through 2025.

Table 1: Multiple Dry-Year Supply Capability and Projected Demands

Multiple Dry-Year Supply Capability and Projected Demands					
	2005	2010	2015	2020	2025
Current Supplies					
Colorado River	742,000	885,700	1,042,700	1,135,200	1,142,700
California Aqueduct	1,310,300	1,396,100	1,166,100	1,140,300	1,140,300
In-Basin Storage	455,300	531,700	530,400	513,000	499,200
Supplies Under Development					
Colorado River	-	-	150,000	114,800	107,300
California Aqueduct	-	175,000	370,000	370,000	370,000
In-Basin Storage	-	89,000	200,000	200,000	200,000
Maximum Supply Capability	2,507,600	3,077,500	3,459,200	3,473,300	3,459,500
Total Demands on Metropolitan	2,245,200	2,175,600	2,320,900	2,534,100	2,688,500
Potential Reserve and System Replenishment	262,400	901,900	1,138,300	939,200	771,000

Table 2: Single Dry-Year Supply Capability and Projected Demands

Single Dry-Year Supply Capability and Projected Demands					
	2005	2010	2015	2020	2025
Current Supplies					
Colorado River	742,000	885,700	1,042,700	1,135,200	1,144,700
California Aqueduct	1,017,300	1,017,300	842,300	842,300	842,300
In-Basin Storage	730,400	790,000	787,800	757,900	734,300
Supplies Under Development					
Colorado River	-	-	150,000	114,800	107,300
California Aqueduct	-	175,000	370,000	370,000	370,000
In-Basin Storage	-	89,000	200,000	200,000	200,000
Maximum Supply Capability	2,489,700	2,957,000	3,392,800	3,420,200	3,396,600
Total Demands on Metropolitan	2,169,300	2,096,100	2,266,500	2,487,900	2,618,700
Potential Reserve and System Replenishment	320,400	860,900	1,126,500	932,300	777,900

Table 3: Average Supply Capability and Projected Demands

Average Supply Capability and Projected Demands					
	2005	2010	2015	2020	2025
Current Supplies					
Colorado River	742,000	885,700	1,042,700	985,200	992,700
California Aqueduct	1,800,800	1,803,200	1,743,900	1,734,900	1,725,900
In-Basin Storage	-	-	-	-	-
Supplies Under Development					
Colorado River	-	-	-	-	-
California Aqueduct	-	45,000	200,000	200,000	200,000
In-Basin Storage	-	-	-	-	-
Maximum Supply Capability	2,542,800	2,733,900	2,986,405	2,920,100	2,918,600
Total Demands on Metropolitan	2,169,300	2,096,100	2,266,500	2,487,900	2,618,700
Potential Reserve and System Replenishment	373,500	637,800	720,100	432,200	299,900

